

NOAA NOS

MARINE ECOTOXICOLOGY

Toxicology, chemistry and ecology issues pertinent to the marine and estuarine habitats of the Southeastern U. S. are the focus of Marine Ecotoxicology. A major goal is to establish linkages between land use and the presence of chemical contaminants in the marine environment. Interdisciplinary research is focused on identifying chemical and bacterial contaminants associated with anthropogenic inputs from agriculture, urbanization, dredging operations, and industrial discharges and their resulting toxicological and ecological impacts on marine and estuarine ecosystems.

RISK ANALYSIS AND INFORMATION MANAGEMENT

RAIM's mission is to improve the utility and accessibility of scientific information within the coastal science community. RAIM engages in scientific studies in partnership with others to synthesize, analyze and disseminate information on processes, including anthropogenic factors, that may influence coastal environmental conditions. RAIM also designs, implements, and maintains computing and communications systems and services for CCEHBR; develops and administers enterprise wide databases; and facilitates and manages the flow of scientific information; considering associated risk factors, across CCEHBR and its internal and external partners. The ultimate goal is to develop enhanced predictive capabilities and risk management options for use by natural resource managers, public health agencies, industry, and other partners.

MARINE MAMMALS AND PROTECTED RESOURCES

Working to improve the management and conservation of protected species such as marine mammals and sea turtles, research is centered on determining the effects of environmental contaminants on animal and population health. A multi-disciplinary approach is used, and includes studies of bottlenose dolphin communities using photo-identification, biopsy and live-capture sampling, biomolecular studies using genetics and health indicators, and risk assessment modeling. In addition, stranded marine animals are thoroughly studied to improve our understanding of animal health by determining and monitoring causes of mortality.



MARINE BIOTECHNOLOGY & GENETICS

Questions in biodiversity, environmental health, marine and fisheries biology, and the development of products from the marine environment are all addressed through the application of molecular and cellular biology. Research focuses on rapid assay development, discovery of biomarkers to assess resource and ecosystem health and molecular genetics. The Atlantic-Gulf Genetics Center (TAGG), functions within the Biotechnology Program to provide a genetic context for critical management and enforcement decisions for the long-term conservation and use of living marine resources.



CCEHBR

MARINE FORENSICS

Law enforcement support, unusual mortality investigations, and marine lipid chemistry form the basis of this program. Together, these efforts help to resolve marine forensic issues through integrative strategies using morphological evaluations, biochemistry, chemistry, and genetics. Forensic science principles are applied in support of law enforcement for the conservation and management of marine resources, with emphasis on protected and managed species, and investigations into ecological insults that result in adverse effects on the marine resource and their habitat.

PATHOBIOLOGY

Scientists investigate the role of disease in the distribution, abundance, marketability, and edibility of marine animal resources, determine the influence of natural and man-made environmental factors on the occurrence and persistence of diseases, and explore the use of marine animal health as an indicator of environmental health. Focus is on developing and applying histopathological, clinical, biochemical, and microbiological approaches to study diseases of shellfish, marine mammals and sea turtles. Some of this work is conducted at the satellite NOS research facility in Oxford, MD.

MARINE BIOTOXINS

The Marine Biotoxin Program conducts research and provides scientific guidance to promote the effective management of fisheries, public health and ecosystem health on issues related to marine biotoxins and harmful algae. Research is conducted on all of the major classes of marine biotoxins. Fisheries management research is conducted through development of quantitative dockside tests, on board tests and production of toxin standards. Public health research is conducted by the identification of biomarkers of toxin exposure and assessment of the acute and chronic risks of exposure. Ecosystem health is addressed by studying the role of bacterial-algal interactions and identifying genetic markers for specific strains responsible for harmful algal blooms.

CHEMISTRY

The Chemistry Unit engages in structural, organic, and analytical analyses of biologically active and anthropogenic molecules from marine sources. Structural identifications employ HPLC, MPLC, long column, and GC for purification and quantification of compounds such as marine biotoxins. Structural characterizations are executed in contemporary NMR facilities equipped with a Bruker 500 MHz NMR and PE-Sciex API mass spectrometer and SGI computer modeling capabilities. The analytical component quantifies anthropogenic contaminants such as PCBs, PAHs, pesticides and trace metals in marine sediments, tissues, and water using GC HPLC-fluorescence, Atomic Absorption (AA) and Inductively Couple Plasma (ICP) to assess the impact of development and urbanization on the flora and fauna of coastal systems.

at
Charleston



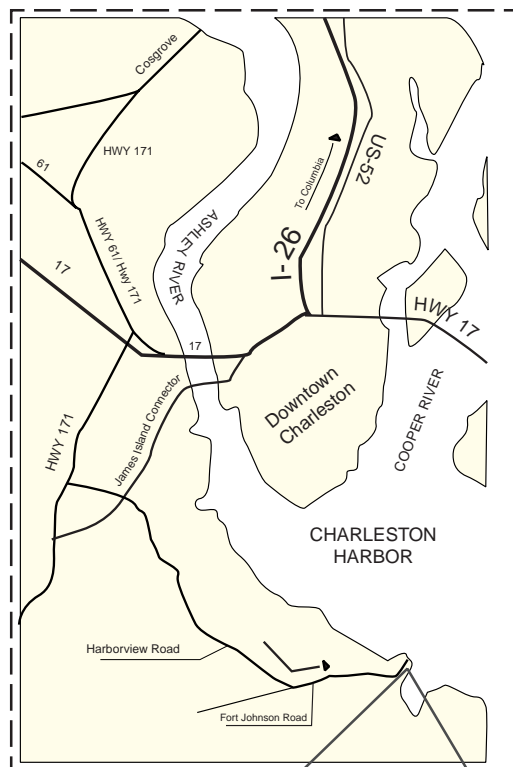
elcome to the
NOAA National
Ocean Service
Center for Coastal
Environmental Health
and Biomolecular Research
at Charleston (CCEHBR).

National Ocean Service is the primary civil agency within the Federal Government responsible for the health and safety of our nation's coastal and oceanic environment.

The goal of NOS is to ensure that the Coastal Stewardship ethic is embraced by individuals and institutions in all sectors of society, particularly those residing in coastal areas.

Mission

*The mission of the
CCEHBR is to provide
scientific information required to
resolve coastal ecosystem health
issues associated with the agency
goals of the NOS.*



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